The Platformization of Higher Education

Anna Tolmayer

Research Assistant

Simonyi BEDC, University of Pécs

80 Rákóczi street, Pécs, 7622, Hungary

`tolmayer.anna@ktk.pte.hu`

Zsolt Bedő, PhD

Director

Simonyi BEDC, University of Pécs

80 Rákóczi street, Pécs, 7622, Hungary

`bedo.zsolt@ktk.pte.hu`

Abstract. *The aim of this research is to evaluate the increasing prevalence of multi-sided platforms with special attention to their effects in the sector of higher education. Utilizing the methodology of a literature review we set out to uncover and confirm the existence of a so-called platformization trend, even in the settings of higher education. Through the compilation and categorization of existing platforms offering services in the context of higher education, we aim to provide evidence for the emerging platform-transformation of post-secondary education apparent in the literature.*

Keywords. multi-sided platforms, higher education, platformization

1 Introduction

In a "challenging new landscape of a world in which platforms win" (Parker, Van Alstyne & Choudary, 2016 p.7) the previously stable, traditional sectors are under pressure to keep up, and often their only chance for survival is to surrender to the economic and social transformation driven by multi-sided platforms (Parker, Van Alstyne & Choudary, 2016). In this paper we focus on the sector of higher education and we seek to discover the ways in which and the points at which platform solutions enter the realm of post-secondary education. To achieve this, following a systematic literature review uncovering the existence of a platformization trend that has begun to impact the sector of education, we construct a framework of higher education containing the largest milestones of the process. Based on the framework we categorize existing platforms targeting a segment of post-secondary education and we evaluate their solution and roles as complementary or disruptive to the traditional structure of higher education.

2 Literature Review

Multi-sided platforms, their economy, business model, strategies and several other aspects generate interest in both the academic and non-academic worlds, in and outside the discipline of Economics. David S. Evans (2003) described multi-sided platform markets as markets that need to acquire and uphold a minimum of two codependent customer groups that interact with each other in order to succeed. Since then, multi-sided platforms have been defined by numerous scholars in various articles.

These definitions illustrate a consensus among scholars since they tend to describe multi-sided platforms similarly to how David S. Evans did above and how he and Richard Schmalensee (2016) did in their book Matchmakers: The New Economics of Multisided Platforms: "physical or virtual places where members of [...] different groups get together" (Evans & Schmalensee, 2016 p.11) in order to perform mutually beneficial exchanges that the platform facilitates (Evans & Schmalensee, 2016). Throughout the book the authors illustrate the brief definition above with detailed case-studies of established platform businesses. They explain the underlying opportunities and challenges faced by the adopters of the business model and its nontraditional and often counter-intuitive strategies. In the final three chapters it is proposed that multi-sided platforms have both constructive and destructive potentials since they are equally able to generate new markets as they are able to destroy traditional ones or catalyse transformation (Evans & Schmalensee, 2016).

2.1 Platform Transformation

On the topic of transformation there have been articles published such as How to Launch Your Digital Platform: A Playbook for Strategists by Benjamin Edelman (2015) and Nathan Furr's work in the Harvard Business Review titled Transitioning your Company from Product to Platform (2016) that can be used as resources for those looking to launch a multi-sided platform or to turn their existing linear businesses into platforms. Feng Zhu and Nathan Furr (2016) emphasise that in the transformation process acquiring a critical mass of participants is as essential as generating value for all parties to ensure a successful transition. Numerous traditional businesses would find the transition beneficial, argue Andrei Hagiu and Elizabeth J. Altman (2017), as it may provide competitive advantage in the future. The points made in these articles further emphasise and validate the existence of the transformative powers and lasting effects of multi-sided platforms on the economy, society and the world as a whole.

This force of platforms has been described in the book Platform Revolution: How Networked Markets are Transforming the Economy and How to Make Them Work for You (2016). It proposes a new era where the previously governing rules and strategies that used to lead to success change and where platforms that are simultaneously 'creating wealth, generating growth and serving the needs of humankind' (Parker, Van Alstyne & Choudary, 2016 p.7) prevail.

The revolution described in the book is characterised by the disruptive potentials inherent in platform businesses that can revolutionise and fundamentally transform previously secure industries and entire sectors. This disruption is illustrated through real-life examples, such as how the illustrious Uber revolutionised urban transportation, and the authors emphasise the key role of digitalisation in the process. They describe the role of the internet in platform businesses as central in the creation of their unique values since it allows for the connection and coordination of elements of the physical realm, be it products or humans (Parker, Van Alstyne & Choudary, 2016).

The authors advise traditional businesses to consider adopting a platform business model or at least implements elements of it in order to stay relevant in the increasing competition, and they exemplify the advice with describing how corporate giants like Apple and Nike learn from platforms to battle their disruption (Parker, Van Alstyne & Choudary, 2016).

2.2 Transforming Education

As an effect of the disruption caused by multi-sided platforms, the authors predict numerous sectors ranging from banking to health-care to soon become subjects of the platform revolution, although they realise that within such sectors conservativism, traditions and policies may impose risks and challenges on the disruptors and hence cause a less fast-paced transformation process. One of the sectors facing the threats of this revolution, as highlighted in Chapter 12, is education (Parker, Van Alstyne & Choudary, 2016).

The sector provides a fertile soil for disruption, since information and its flow are key components of the offered value but inequalities are heavily present in its accessibility, and it utilises traditional, expensive and non-scalable workforce in an overall fragmented industry. With a focus on higher education and the increasingly popular MOOCs they paint a near future of education where platforms solve the problems of traditional education described above while simultaneously challenging institutions to keep up with the changes by offering versions of their courses and programs online, for a mass of students worldwide, at a fraction of the original price (Parker, Van Alstyne & Choudary, 2016).

Through this race for relevance, as the authors claim, the traditional higher education package found on a campus breaks up and knowledge becomes available to the previously excluded groups as well. They argue that platforms have the potential and power to transform all aspects of education, and that the process has already started. They consider the ability of platform solutions to uniquely connect learners with educators an advantage that makes the transformation in the future inescapable (Parker, Van Alstyne & Choudary, 2016).

A prime example of platforms facilitating connections is social media. The use of social media is extremely and ever-increasingly widespread, since, among many functions, it enables participants to connect, communicate and interact online.

Charles H.F. Davis and his colleagues (2012) set out to address the lack of research on the connections between social media and education, especially the ways in which and the extent to which higher education institutions utilise the solutions offered by

various social media platforms. To provide the groundwork for further research on its higher educational implications, they review the preexistent accounts on social media to identify its key functions that students or institutions can or could utilise and they provide a descriptive summary of the issue. They utilise data to identify trends and to summarise and further develop the theoretical basis of the topic.

They identify a set of implementations of social media at US institutions with a focus on community colleges. To achieve this, they collected data by polling institutions on their social media use and the experienced added values of it. The results showed that the participating colleges use social media for academic purposes including class discussions and recruitment, to support and engage current students and to spread out connections through alumni engagement and outreach to the wider community (Davis, Deil-Amen & Rios-Aguilar, 2012).

Regarding the added value, 100% of institutions have reported using social media and the majority sees the core values in marketing, spreading information and the enhancement of engagement over the academic and learning purposes (Davis, Deil-Amen & Rios-Aguilar, 2012).

The authors also envision an increasing future importance of social media use in higher education as digital age students have increasing expectations for an up to date flow of information that such platforms can provide, while collecting valuable data (Davis, Deil-Amen & Rios-Aguilar, 2012).

Building on this research, van Dijck et al (2018) propose a new reading of social media in education. They claim that previous accounts viewed social media solutions as tools for educational institutions, however, a platform approach allows for a more complex reading, since a platform is a complex interaction between the users, the providers of the technology and business models. This interaction does not only affect learners and teachers but also impact the establishment of schools and higher education institutions and it has an effect on the traditional sector of education as a whole. They define two core mechanisms, datafication and commodification, utilised by educational platforms and they argue that these mechanisms were adopted from social media platforms (Van Dijck & Poell, 2018).

During the datafication process, as it is illustrated through the example of AltSchool, a platform for elementary schools, individual learning processes are turned into data and can be used for tracking

performance when compared to a standard. Thus, a personalised layer explains the collection of data inherent in such platforms. It is highlighted by the authors that although increasing personalisation has advantages in education, certain ethical issues regarding the ownership and availability of the data arise that await resolutions (Van Dijck & Poell, 2018).

The aspect of commodification is approached through the example of MOOCs that are argued to have the potential to disrupt traditional higher education and they implement the typical operational characteristics of platforms in their business models and organisations. The key idea in the commodification process is the monetisation of online education, and it ties in closely with datafication, as data is an essential source of income for these platforms. Through the case study of Coursera, the authors describe the ways in which a MOOC platform is able to influence the direction in which higher education is headed by partnering with universities to launch online courses that draw in a massive audience of learners that earns revenue for both the institution and the platform, while disrupting the traditional operation of universities and alike (Van Dijck & Poell, 2018).

The authors claim that a platformization trend is apparent in education and they raise the question of the extent to which this trend is going to permeate the system and operation of higher education as a whole. They identify three key problems to focus on in further research: these platforms might have the tendency to not place enough emphasis on the pedagogical aspects of education, the softwares and solutions for data tracking are not tested sufficiently enough at the settings of institutions, and that these educational platforms may catalyse the need for rethinking the status of education as public good (Van Dijck & Poell, 2018).

3 The platformization of Higher Education

Davis et al (2012) broke down the activities of post-secondary education into four elements: Learning, Student Support, Community Building and Expanding Connections. Building on these categories with the aim of simplifying and modelling the complex domain of higher education and to enable the effective evaluation and categorization of relevant multi-sided platforms, a framework- comprised of the

three major constituting elements of the process of post-secondary education- was created (Fig.1.). The first element, *Input*, includes all activities targeting prospective students, ranging from official communication between institutes and potential students, careers-counseling outside of institutions to peer-to-peer interaction. The second step, *Education*, connects the first three elements proposed by Davis. It encompasses academic and non-academic matters during the typical student life-cycle, in and outside of institutions, where outside refers to the online context where alternatives to formal education and communication, such as Massive Online Open Courses and social media are available. Finally, *Output* incorporates, among others, alumni affairs, networks of institutions and students nearing their graduation and entering the job market.
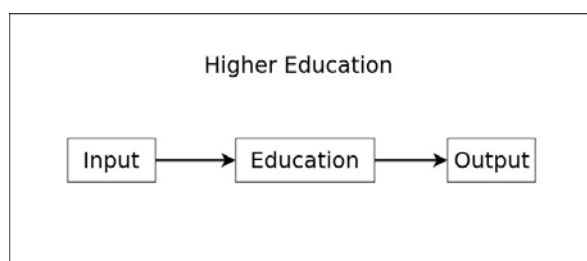

Figure 1. Higher Education Framework

How do platforms come into this clearly defined, well-known structure? As it is apparent from the literature, multi-sided platforms facilitate connections. They act as matchmakers for supply and demand. They allow the -at least- two sides to meet, interact and exchange value, contributing to the sustained existence of a mutually beneficial digital forum, while ensuring that they earn sufficient profits doing so. There is an almost unlimited variety of demand in higher education, such as a demand for guidance when selecting schools to apply to, a demand for engaging and modern ways to interact with educators or a way to keep alumni in touch with their alma mater in a productive manner. In response to these demands, numerous platform solutions have emerged over the years to match the demands to the supply that is often, although not always, found at higher education institutions.

3.1 Input Platformization

Considering the Input side of a university, reaching and attracting prospective students is a

priority. In this context, not only the quantity but also the quality of incoming students is of precedence. From the perspective of students, selecting the right institution is an equally cardinal and complex process. Not surprisingly, providers have detected the underlying opportunities waiting for exploitation and as a result, various platform solutions have been established to act as silver bullets for both parties.

One way for platforms to target these exact groups with the demands and aims mentioned above is offering a digital space where prospective students can gain information about institutions to help their decision-making while simultaneously universities can advertise themselves and collect important data about the inquiring students, such as their quantity, age, location and objectives. An illustrative example of this solution is Studyportals that focuses on the connection of students from all over the globe with high potentials and prestigious higher education institutions as their possible destinations ("Studyportals", 2019). Another similar solution is BridgeU that -instead of matching individual students with institutions- targets secondary schools and partners with colleges and universities to ensure the required exchange of value ("University & Careers Guidance Platform for Global Schools", 2019).

Under this category of platforms, The Access Platform offers a current way of outreach for universities. Aside from the maintenance of student-led blogs centered around life at their specific higher education institutions aimed to influence potential students, it provides a way for prospective students to chat with selected student volunteers that represent their institutions, thus supplying the young inquirers with a solution fitted to their everyday needs and expectations influenced by the key role of social media in their lives ("The Access Platform", 2019).

Up to this point, the platforms and services discussed have directly involved higher education institutions. However, there are platforms that do not revolve around the need for universities to ensure an optimal inflow of new students, but support the connection of information seeking future students with independent counselors. Of course, colleges and universities cannot be neglected when discussing the topic of higher education, the end results are applications and potential enrolments to institutions in this case as well. Cialfo ("Cialfo", 2019) and CollegePlannerPro ("CollegePlannerPro", 2019), among various managerial functions, allow clients

and counselors to schedule and conduct meetings and to chat in the corresponding digital spaces.

Regarding the disruptive potential inherent in multi-sided platforms, these solutions do not aim to subvert post-secondary education as we know it today, as they provide efficiency-increasing tools and solutions for prospective students, independent counselors and institutions to interact in a way that takes into account and utilizes the changing circumstances and expectations caused by digitalization and the increasing dominance of social media. Thus, these platforms can be categorized as complementer to the existing process of higher education.

3.1 Education Platformization

Following the framework, after admissions, a typical student's journey through university holds a wide variety of potential platform-opportunities from learning and teaching through extracurricular activities to administrative matters. Keeping in mind that in order for a multi-sided platform to operate successfully all parties need to be motivated to participate and get involved, it is not sufficient enough to only account for the demands on behalf of the students, the objectives of institutions need to be discussed as well. Apart from the collection and analysis of data discussed in the previous section, through the services of the various platform solutions targeting this segment of the framework, higher education institutions also become able to reach, communicate and engage with their current students more effectively, they get to create, cover and distribute learning materials and evaluate assignments in a more efficient and up to date manner.

Considering the learning and teaching aspects, there are platforms building on the added value of digitalization through supplying on-line learning materials that increase the efficiency of in-class work. Echo360, for instance, is a platform that focuses on the context of higher and continuing education and aims to foster personalized, active learning through videos, live-streams, personalized materials and engaging, digital solutions for students to participate in class and interact with professors and each other ("Higher Ed Video Platform with CMS, Engagement Tools and Analytics", 2019).

An interesting example for the underlying values in the facilitation of connections through a multi-sided platform in the university context is UniCollabration.

This platform provides a meeting space for educators across the globe where they can arrange collaborations between their courses and hence provide an international and intercultural academic experience for the students of both parties, and this constitutes the unique added value of this solution ("UNI-Collaboration", 2019).

A substantial part of higher education revolves around evaluation. The ever increasing number of submissions of the growing number of students is becoming progressively more challenging for individual educators and entire institutions to keep up with and as a result, the value of feedback decreases and this creates a negative effect on the quality of education as a whole ("Sense", 2019). Platform services, such as Sense -an award winning ed-tech tool and platform- intend to provide solutions to this problem through utilizing technologies like artificial intelligence. Focusing on the discipline of Information Technology, they offer a platform where students can submit their assignments, after submission the projects undergo an AI based first-round evaluation that constitutes considerable help for educators to produce personalised, tailored comments and advice. Through this, Sense seeks to make higher education more scalable and to maximise the added value for students inherent in quality feedback and teacher-student relationships ("Sense", 2019).

The platform discussed above offers services focused on IT education. There are other platform solutions that narrow their targets specific to a discipline. Startuptree is an illustrative example of such a concrete target on a specific domain, it is a complex platform serving the startup culture present in numerous post-secondary institutions. It acts as a facilitator of connections within the entrepreneurial ecosystem of a university, aiding the communication between students, teachers, mentors and other stakeholders, while simultaneously providing useful managerial tools to support programs of entrepreneurship ("StartupTree: The easiest way to manage and track startups and founders in your network.", 2019).

Aside from academic matters, extracurricular activities form an essential segment of life during post-secondary education. CampusGroups targets this arena and offers a platform solution for institutions where the various groups and clubs can manage their operations, where its members can interact and events can be organized and advertised, while simultaneously allowing the institution to remain in

control and to collect and analyze important data ("CampusGroups - Discover The Most Powerful and Efficient Community Engagement Platform", 2019).

So far, the services of the platforms discussed above have been tailored to fit the characteristics, processes and needs of the stakeholders of traditional post-secondary education and provided solutions to help increase the competitiveness and efficiency of institutions in the digital era, thus acting as complementary to the original framework. However, there are numerous providers that recognize the shortcomings of higher education as a whole and they center their services around providing alternative solutions to entering traditional university or college education.

Massive Online Open Courses are probably among the first things that come to mind when thinking about multi-sided platforms potentially disrupting the traditional framework. Platforms, such as Coursera ("Coursera", 2019), edX ("edX", 2019), Canvas Network ("Canvas Network", 2019) and Wiise ("Wiise", 2019), allow learners as course attendees and institutions or educators as course providers to connect and exchange value. The mutually beneficial exchange of value happens as the student pays, sometimes literally with money, but always through their presence and contribution to the formation of a critical mass and in turn the educator provides access to learning materials and new knowledge. They build on the advantages of an online space that allows greater flexibility and efficiency compared to a traditional university. These benefits combined with the cost-efficiency attract and enable a much greater mass of participants to enter and gain education and thus MOOCs possess great disruptive powers concerning the transformation of higher education as a whole.

There is another, unique solution that aims to relocate higher education in the online world. 2U provides a complete higher education experience with an official degree or short course completion certificate attainable at the end, and it conducts all matters and processes online. It does not have a physical facility, it provides courses in various disciplines from Business to Health Care and the classes and lectures are held 24/7 to enable students from all over the globe to attend according to their convenience. Their aim, as stated on their website, is to equalize the chances for education around the world and to improve and transform education as we know it today ("2U Powers the World's Best Digital Higher Education | 2U", 2019).

3.3 Output Platformization

Managing, engaging and utilizing alumni is a crucial interest of higher education institutions. The alumni may not solely be a source of continued financial support for universities, past students might bring job opportunities, they might share their experiences or expertise and they might potentially become role models for current students. Maintaining connections with these essential assets is a priority and need for most institutions, and thus alumni affairs constitute another field waiting to be flooded by platform solutions.

Graduway provides a complex platform solution for all matters involving alumni. It acts as a space for interaction between alumni, it allows ex-students to maintain relationships and to follow each other's career paths. It allows members to share job opportunities, articles, to have discussions, to get informed about events at their alma maters. However, it is not only an institute-specific social media platform for graduates. It also provides a platform where current students can connect with previous students as mentors, professionals and company representatives ("Graduway - Alumni Management Software", 2019). Through these interactions facilitated by the platform, aside from the monetary benefits coming from the alumni, the university becomes able to channel the values provided by alumni into its current students that also benefits the institution as a whole on the long run.

For soon-to-be or recent graduates, navigating the job market or landing an internship can seem daunting, and a demand for guidance is apparent. Handshake aims to provide a holistic platform that aids this segment through providing personalised careers guidance, tools for managing the job-search and connecting them with employers looking for high potential recent graduates or students looking for internship positions ("Career Network for College Students & Recent Grads | Handshake", 2019). Thus, the platform provides young and eager job-seekers with job opportunities and it supplies employers with actionable potential employees.

4 Conclusion

Platforms are here to stay and are ready to transform nearly all scenes of life. Scholars and professionals urge businesses to adopt platform business models or at least implement characteristics of multi-sided platforms in order to sustain competitiveness. As it is apparent from the literature that this article reviewed, higher education is among the sectors that are already under the effect of the transformative powers of multi-sided platforms and a platformization trend is observable through the emergence of numerous solutions targeting different arenas, actors and stakeholders involved in the framework of post-secondary education.

Considering the traditional process of higher education and the framework constructed in this paper, there are various platforms that aim to provide solutions for specific problems that institutions and actors face during the *Input*, *Education* and *Output* phases.

The *Input* phase that is characterized by the recruitment process on behalf of institutions and decision-making on the side of prospective students is currently covered by platforms such as Studyportals, The Access Platform, Cialfo or CollegePlannerPro. The wide variety of elements of the *Education* phase ranging from sharing learning materials, evaluating students' submissions to extracurricular event organization and management of clubs and societies are catered for by platform providers like UNI-Collaboration, Sense, StartupTree or CampusGroups. Finally, helping students and recent graduates enter the job market, and enabling institutions to harvest the values inherent in their alumni network while allowing these individuals to connect with each other and give back to the community during the *Output* phase are targeted by solutions such as Graduway and Handshake. These multi-sided platforms may be considered complementer players that contribute to the platform transformation of higher education as we know it today without disrupting the traditional framework as a whole.

However, there are services that seek to provide alternatives to enrolment in traditional higher education. These platforms, mainly categorized as MOOC providers, such as Coursera, edX, Canvas Network or Wiise, exercise their disruptive powers through allowing a greater mass of students to enrol in more flexible and affordable fully online courses often provided by the same prestigious universities that also offer traditional, more exclusive programmes. Moreover, aside from courses, there are platforms, such as 2U, that disrupt the traditional, face-to-face system of higher education by offering complete degree programmes that can be obtained entirely online.

It is apparent that the platformization of higher education has begun, there are multi-sided platforms targeting all three steps of the framework of higher education individually, with few overlaps. However, it is interesting to note that there is scarcity regarding platform solutions that aim to cater for the entire process from *Input* to *Output*. In the near future, an increase in the number and variety of such holistic solutions could be expected as the platform transformation infiltrates the entire sector.

References

2U Powers the World's Best Digital Higher Education | 2U. (2019). Retrieved from https://2u.com/

CampusGroups - Discover The Most Powerful and Efficient Community Engagement Platform. (2019). Retrieved from https://www.campusgroups.com/product/home/

Canvas Network. (2019). Retrieved from https://www.canvas.net

Career Network for College Students & Recent Grads | Handshake. (2019). Retrieved from https://www.joinhandshake.com/

Cialfo. (2019). Retrieved from https://cialfo.co/

CollegePlannerPro. (2019). Retrieved from https://www.collegeplannerpro.com/

Coursera. (2019). Retrieved from https://www.coursera.org/

Davis, C.H.F, Deil-Amen, R. and Rios-Aguilar, C. (2012). *Social media and higher education: A literature review and research directions.* Arizona: University of Arizona and Claremont Graduate University.

Dijck, José Van, and Thomas Poell. "Social Media Platforms and Education." *The SAGE Handbook of Social Media*, 2018, pp. 579–591., doi:10.4135/9781473984066.n33.

Edelman, B. (2015). How to Launch Your Digital Platform: A Playbook for Strategists. *Harvard Business Review*, April 2015, 91-97.

edX. (2019). Retrieved from https://www.edx.org/

Evans, D. (2003). Some Empirical Aspects of Multi-sided Platform Industries. SSRN Electronic Journal. doi: 10.2139/ssrn.447981

Evans, D. and Schmalensee, R. (2016). Matchmakers. Boston, Massachusetts: Harvard Business Review Press.

Furr, N. (2016). Transitioning your Company from Product to Platform. *Harvard Business Review*, *April 07, 2016*, 2-4.

Graduway - Alumni Management Software. (2019). Retrieved from https://graduway.com/

Haigu, A., Altman, E. J., Finding The Platform in Your Product Four Strategies That Can Reveal Hidden Value. (2017). *Harvard Business Review*, *95*(4), 94-100.

Higher Ed Video Platform with CMS, Engagement Tools and Analytics. (2019). Retrieved from https://echo360.com/higher-ed/

Parker, G., Van Alstyne, M., & Choudary, S. (2016). Platform revolution. New York: W. W. Norton & Company.

Sense. (2019). Retrieved from https://www.sense.education/

StartupTree: The easiest way to manage and track startups and founders in your network. (2019). Retrieved from https://startuptree.co/

Studyportals. (2019). Retrieved from http://www.studyportals.com/

The Access Platform. (2019). Retrieved from https://theaccessplatform.com/

UNI-Collaboration. (2019). Retrieved from http://uni-collaboration.eu/

University & Careers Guidance Platform for Global Schools. (2019). Retrieved from https://bridge-u.com/

Zhu, F., & Furr, N. (2016). Products to Platforms: Making the Leap. *Harvard Business Review*, *April 2016*, 73-78.